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U1S S2119

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GB 2331981 A

(58) Field of Search
UK CL (Edition T) **B8P PE2C PT**
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ONLINE:WPI,EPODOC,JAPIO

(54) Abstract Title
Data disk holder

(57) Apparatus for holding a disk-shaped data carrier (6), e.g. a CD or a DVD, having a central aperture comprises a base portion (5) and disk engaging means (1,2,4) for releaseably engaging the central aperture of the data carrier (6), having retaining means (1) for engaging and retaining the data carrier (6) on the apparatus and release means (2,4) which, when pressed, releases the engagement of the retaining means (1) with the data carrier (6) so the data carrier (6) can be removed from the apparatus, wherein removable security means (7) are provided to inhibit actuation of the release means (2,4) to prevent release of the data carrier (6). The security means (7) may be a flat strip for location beneath the release means (2,4) to prevent movement or a plate for fitting over the release means (2,4).

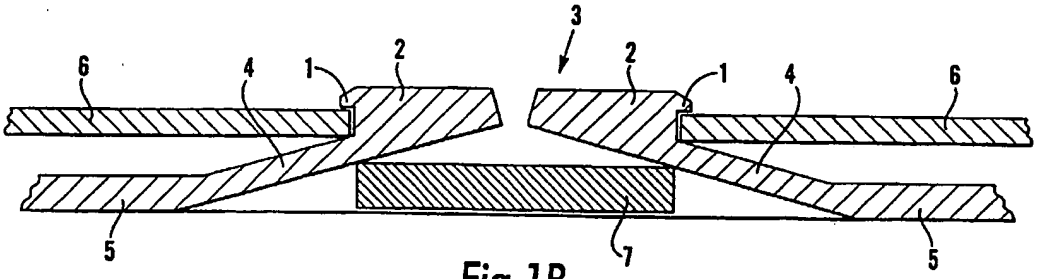

Fig.1B

GB 2 371 039 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

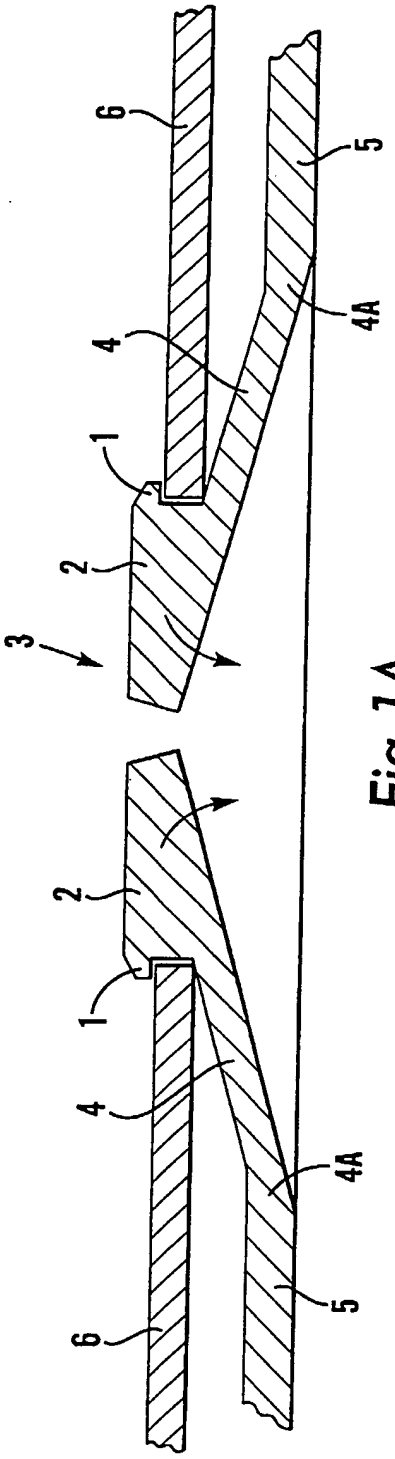

Fig. 1A

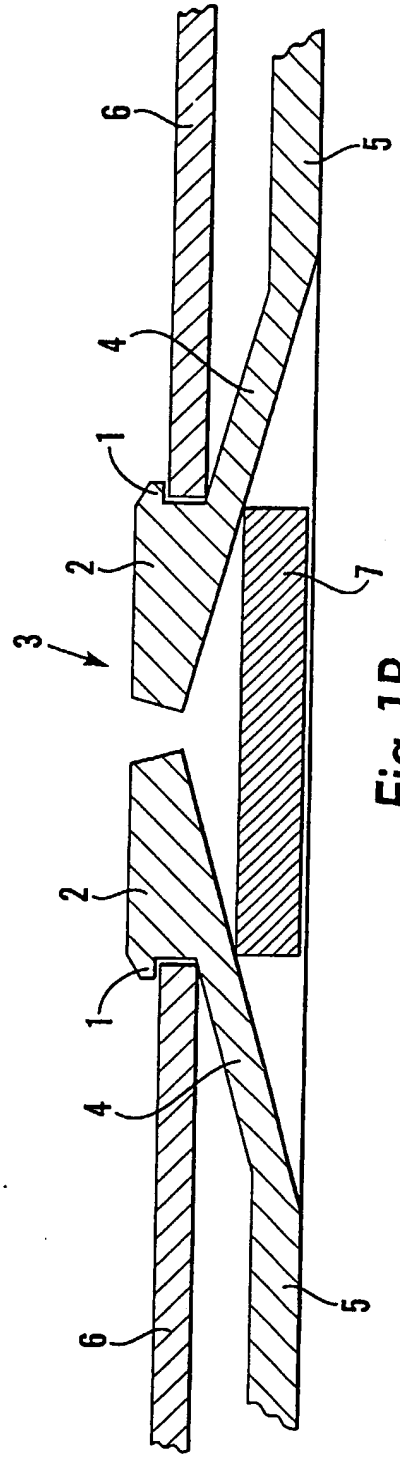

Fig. 1B

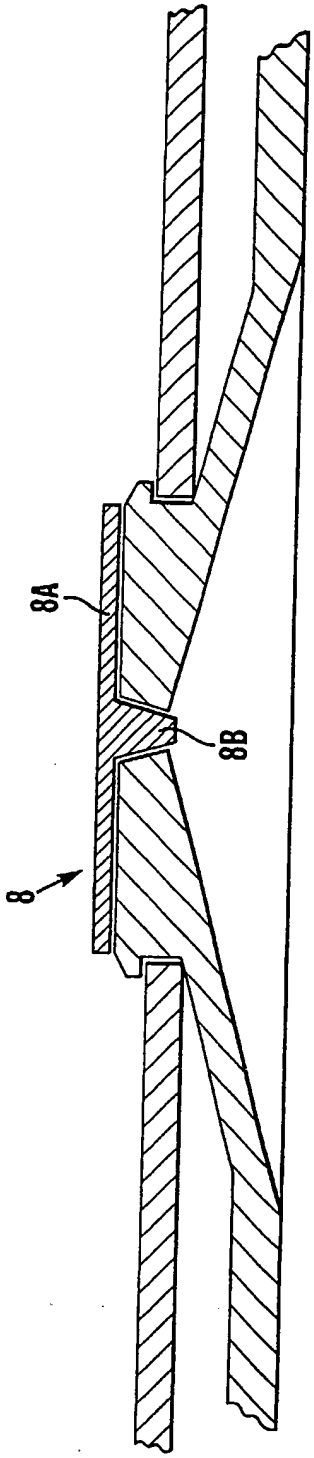

Fig.1C

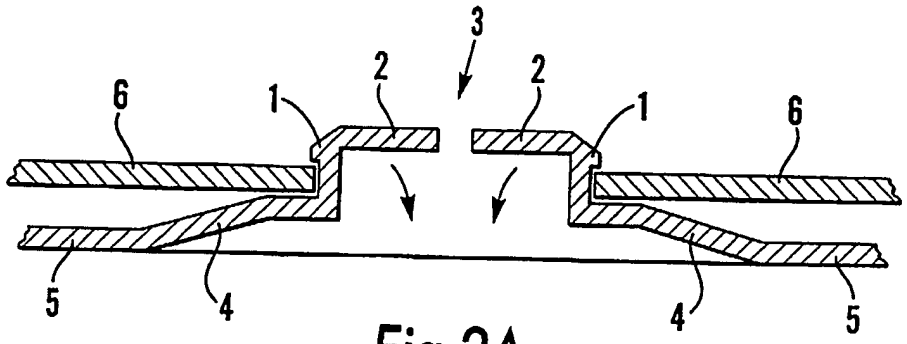

Fig.2A

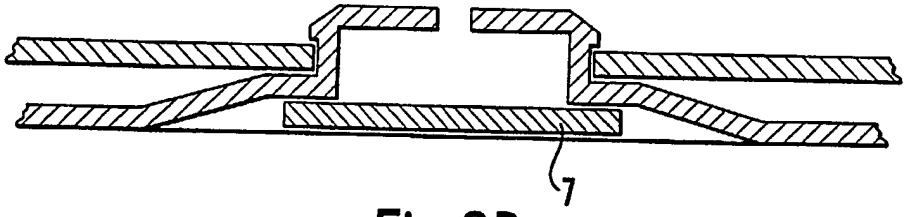

Fig.2B

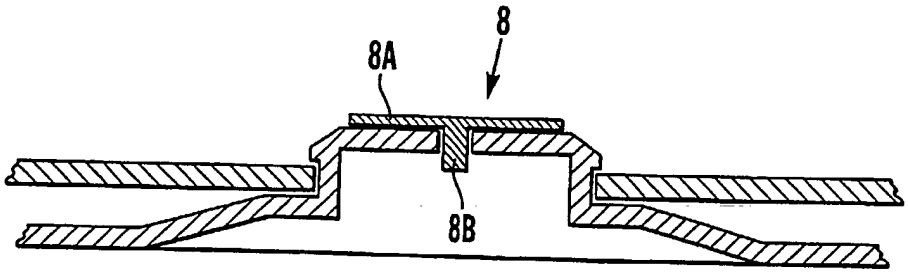

Fig.2C

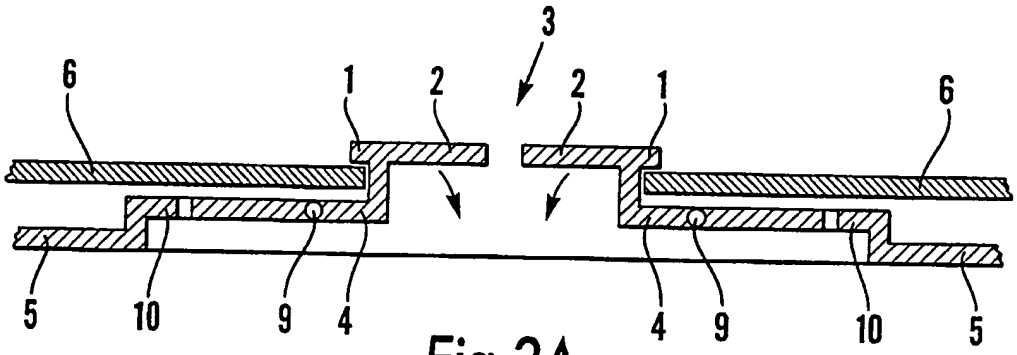

Fig.3A

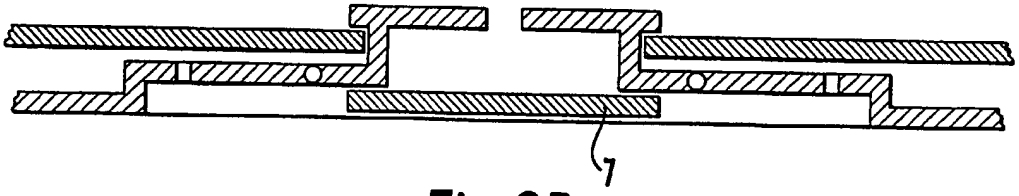

Fig.3B

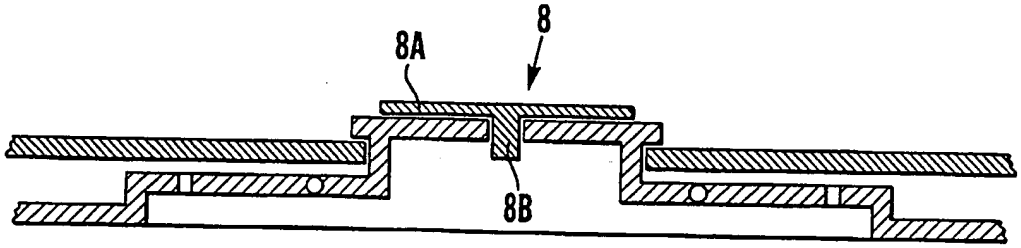

Fig.3C

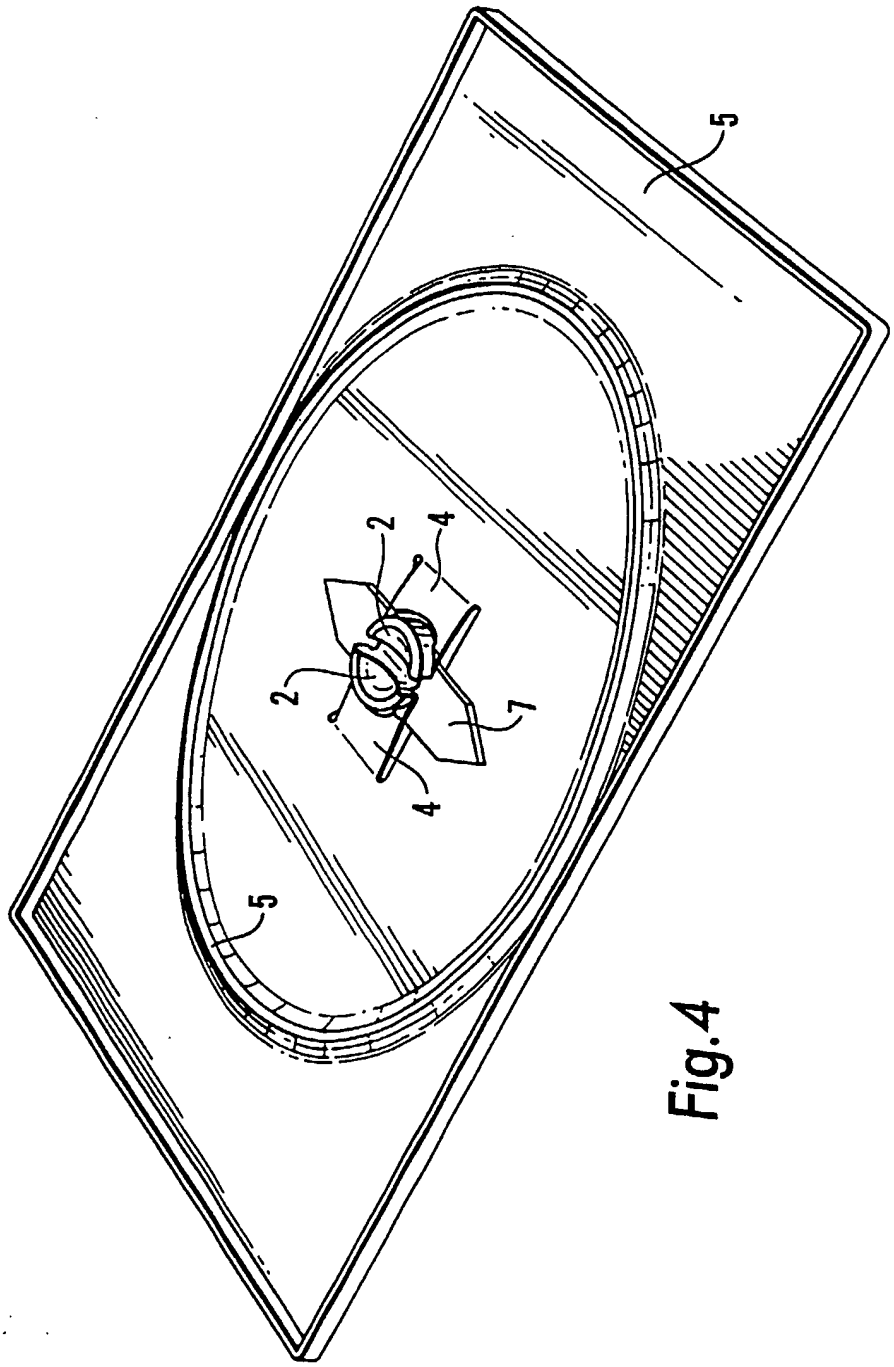

Fig.4

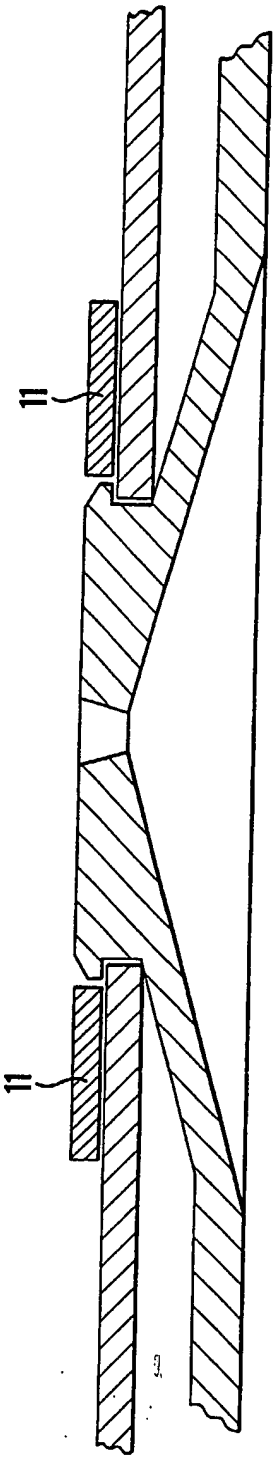

Fig.5A

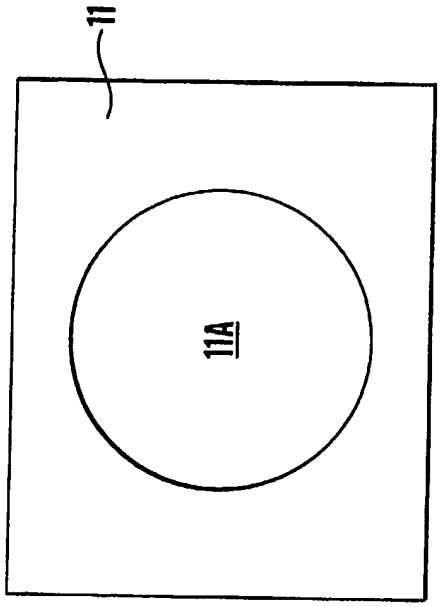

Fig.5B

IMPROVED DISK HOLDER

This invention relates to an improved disk holder, and more particularly to a disk holder with a security device.

Apparatus for holding a disk-shaped data carrier, such as a CD or DVD, are known. Examples of known apparatus are described in US5788068, WO97/41563 the disclosures of which are incorporated herein.

A problem encountered with such known apparatus is the removal and theft of a CD or DVD from the apparatus within a store selling such products. The disk holder is usually provided within a container which is provided with a security tag which triggers an alarm if the container is taken out of the store without the tag first being removed or rendered inactive by staff in the store. The container may also be provided with a clear plastic wrapper which has to be removed before the container can be opened. However, it has been found that thieves are able to slit the wrapper along an edge of the container, eg the bottom edge, and release the CD or DVD from the disk holder within the container by actuating the release mechanism thereof by pressing this through a side wall of the container. They

are then able to remove the CD or DVD from the container by compressing the container so that the side walls bow forming a gap between the two halves thereof so the CD or DVD can be slid out through the slit made in the wrapper. An experienced thief is able to do this whilst pretending to examine the product and slip the CD or DVD into a coat pocket unobserved. They then leave the empty container on the shelf and leave the store with the CD or DVD in their pocket without triggering the alarm system.

For this reason, many stores only display empty containers and when a customer has made a selection, the staff retrieve the relevant CD or DVD from a secure cupboard or safe and place it in the container for the customer. However, this takes additional time and requires a secure storage place for the CDs and DVDs. It also increases the risk that the wrong CD or DVD may be put in the container, especially if the staff are busy. There is therefore a desire within the trade to be able to display CD and DVD containers with the relevant CD or DVD already held therein; such containers are called 'live' containers within the trade.

One of the aims of the present invention is thus to enable the security of a live container housing a disk-shaped data carrier such as a CD or DVD to be improved.

Thus according to a first aspect of the present invention, there is provided apparatus for holding a disk-shaped data carrier having a central aperture, the apparatus comprising a base portion, disk engaging means for releaseably engaging the central aperture of a disk-shaped data carrier, the disk engaging means having retaining means for engaging and retaining the disk-shaped data carrier on the apparatus and release means which, when pressed, releases the engagement of the retaining means with the disk-shaped data carrier so the disk-shaped data carrier can be removed from the apparatus, wherein removable security means are provided to inhibit actuation of the release means to prevent release of the disk-shaped data carrier from the retaining means.

According to another aspect of the invention there is provided a security device for use with such apparatus.

Preferred and optional features of the invention will be apparent from the following description and from the subsidiary claims of the specification.

The invention will now be further described with reference to the accompanying drawings in which:

Figure 1A is a schematic cross-sectional view through disk engaging means for releasably holding a disk such as that described in US5788068 when holding a disk; Figure 1B shows a first embodiment of a security device according to one aspect of the invention positioned to inhibit actuation of the disk engaging means; and Figure 1C shows a second embodiment of a security device positioned to inhibit actuation of the disk engaging means.

Figure 2A is a schematic cross-sectional view through another form of disk engaging means for releasably holding a disk; Figure 2B shows a third embodiment of a security device according to one aspect of the invention positioned to inhibit actuation of the disk engaging means; and Figure 2C shows a fourth embodiment of a security device positioned to inhibit actuation of the disk engaging means.

Figure 3A is a schematic cross-sectional view through a further form of disk engaging means for releasably holding a disk; Figure 3B shows a fifth embodiment of a security device according to one aspect of the invention positioned to inhibit actuation of the disk engaging means; and Figure 3C shows a sixth embodiment of a security device positioned to inhibit actuation of the disk engaging means.

Figure 4 is a perspective view of disk engaging means similar to that shown in Figure 1C showing the first embodiment of a security device in position;

Figure 5A is a schematic cross-sectional view of disk engaging means similar to that shown in Figure 1A also showing a wall of a container in which it is housed and a further embodiment of a security device positioned to inhibit actuation of the disk engaging means through the wall of the container; and Figure 5B is a plan view of this embodiment of a security device.

Depending on the requirements, the security devices described herein may be used to provide different levels of security for a live CD or DVD container. In one form, the security device may simply be arranged to make it more difficult to actuate the disk release mechanism through the wall of the container but can be readily removed when the container is opened. Where a higher level of security is required, the security device may be arranged so that although it is easy to install by sliding it in one direction, it is difficult to slide in the opposite direction and remove without use of a special tool or special equipment. Other and functions of the security device are envisaged and will be described separately in further patent applications. However, in each case they rely on the use of a security device which inhibits actuation of the disk release mechanism.

Figure 1A and 1B show a device similar to that shown in US5788068 comprising retaining means in the form of projections 1 which project radially outwardly from button parts 2 which together form a button-like member . The button parts are mounted at the radially inner ends of arms 4 which are resiliently cantilevered from a base portion 5. As described in US5788068, when the button-like member is pressed, each button portion and the projection carried thereby moves about an arc approximately centered on the position 4A where the arm is connected to the base portion. As the projection moves about the arc it

simultaneously moves radially inwards and downwards towards the base portion. Whilst moving in this manner, the projections press down on the disk adjacent the edge of the central aperture thereof and thus depresses the centre of the disk towards the base portion until the projection has moved radially inward a sufficient distance to release its engagement with the disk.

Thus it will be appreciated that during this action, the button portions and the arms are depressed towards the base portion. Figure 1B shows a security device in the form of a flat strip 7 which is slid beneath the arms between the arms and the base portion. The strip thus prevents the arms from being depressed. In view of the nature of the mechanism described above, pressure on the button-like member will thus not release the disk as in order for the projections to be released from engagement with the disk it is essential that the arms be depressed so the projections can move along an arc as described above.

It will be appreciated that this requires the connection between the button portions and the respective arms not to be too flexible otherwise there is a danger that the button portion may tilt inwardly about this connection and thus release the engagement of the projections with the disk.

The strip may take a variety of forms. Preferably it is formed of a relatively tough plastics material such as Nylon™ or styrene (the remainder of the device typically being formed of polyethylene) and has a thickness which enables it to be slid under the arms but which prevents any significant depression of the arms towards the base portion. It may, for instance typically be about 1 - 3 mm thick. The strip should have a length sufficient to span the aperture in the base portion beneath the arms (this aperture being present to allow the arms to be formed in a one-shot injection moulding process with the base portion) so that it is supported on the base portion on each side of the arms. Typically, the security device has a length of at least 20 mm. If such a short device is used, a special tool may be

required to slide it into place after a disk has been mounted on the disk engaging means (as, once the security device is in place, it prevents the disk engaging means from receiving a disk). Alternatively, the security device may be slid in place via the aperture in the base portion beneath the arms

The strip may have a greater length if it is to be connected to additional security devices and/or if it one end of it is to be accessible at a position beyond the periphery of the disk.

The strip may prevent the button portions or the arms from being depressed, or both. Instead of being a strip of plastics, the security device may take other forms, eg a U-shaped piece of metal wire (not shown) of appropriate thickness, with one leg of the U-shape under one arm and the other under the other arm. A simple form of this version of the device can formed from metal wire such as that used to make a conventional paper clip.

The disk engaging means illustrated in the Figures have two arms. However, a similar security device can be used with disk engaging means having just one arm or with more arms, eg three arms. In the latter case, the security device preferably has a shape which enables it to be slid beneath the arms through the space between adjacent arms but supported at three points on the base portion, ie between each pair of arms.

Figure 1D shows an alternative form of security device 8 which fits in the gap between adjacent button parts. This form of the security device may comprise a cap 8A which fits over the button-like member with a projection 8B on its underside shaped to fit into said gap. The projection may thus have a straight form if it is to fit in the gap between two semi-circular button parts or may have an S-shaped profile it is to fit in the gap between two button parts having Yin-yang shapes (as shown in WO97/41563).

It will be appreciated from the description above of how the release mechanism operates that when the button parts move about the arcs described, they move radially inwards towards each other so that the button-like member contracts and the gap between the button parts reduces in width. The security device shown in Figure 1C is a snug fit within said gap so prevents the button parts moving towards each other and so prevents the button-like member from contracting when it is pressed. The projections cannot therefore move radially inwards to release their engagement with disk.

Such a device may be fitted to a button-like member comprising a plurality of button parts, eg two or three. It may be sufficient for it to fit into a gap between just one pair of button parts but preferably it fits within the gaps between each pair of button parts.

The security device shown in Figure 1D may be used in place of, or in addition to, the security device shown in Figure 1B.

It will be appreciated that the security device shown in Figure 1B prevents the button-like member from being depressed and that shown in Figure 1D prevents the button-like member from contracting. However, it will be appreciated that in this mechanism, they both also prevent the button parts from pivoting (about axes located approximately where the arms join the base portion).

Figures 2A to 2C and 3A to 3C correspond to Figures 1A to 1C described above but show slightly different forms of releasable disk engaging means.

In Figure 2 the arms and the button parts are of different shape to those shown in Figure 1 but their function is very similar.

In Figure 3, the button parts are mounted on arms which are pivotably mounted at positions 9 to a raised area 10 of the base portion by torsion connections on

each side thereof. These torsion connections may comprise thin plastic connections between the arms and the base portion. Otherwise, the function of the security devices are similar to those described in relation to Figure 1 and 2.

Figure 4 shows a perspective view of the device shown in Figure 1C. As shown in the Figure, the security device has a substantially rectangular shape with a point at one end to facilitate location of the device beneath the arms.

The security devices described above help secure the disk to the disk engaging means. These security devices may operate independently of closure of the container in which the disk engaging means is housed. In such a case, the container may be opened without compromising the security of the connection between the disk and the disk-engaging member. In such situations, the wrapper conventionally provided around the container may also be omitted.

Figure 5 shows another form of security device. As mentioned above, with some types of container it is possible to actuate the button-like member from outside the container by pressing a wall of the container lying over the button-like member. As the wall is relatively flexible, it can be deflected enough to press against the button-like member. This can be prevented if a security device such as that shown in Figure 5 is fitted about the button-like member before the container is closed. This security device comprises a substantially planar plate 11 with an aperture 11A therein shaped to fit over the button-like member, the plate having a thickness similar to that of the button-like member. If the wall of the container is now pressed towards the button-like member the security device prevents sufficient pressure being applied to the button-like member to release the disk. This is due to the fact that pressure applied by the wall of the container is applied to the security device and thus to the disk (in a similar manner to the pressure applied to the disk when it is installed on the disk engaging means). Another way of viewing this is that the security device maintains the part of the

wall over the button-like member relatively flat so the wall cannot be deflected to the shape required to press and actuate the button-like member.

The security device shown in Figure 5 typically has a thickness of 1 to 2 mm and a width of around 3 to 10 cm. The plate may be rectangular as shown, circular, or of some other shape.

The security devices described with reference to Figures 1 to 4 serve to secure the disk to the disk engaging means. In a preferred arrangement, a security tag of the type currently used to trigger an alarm if the product is removed from a store without the tag being rendered inoperative or removed may be positioned between the disk and a wall of the container so that the tag can only be removed once the disk has been released and removed.

The security devices described above have the advantages of being simple and having little, if any, undesirable impact on the aesthetics of the container.

Several different embodiments of the security device are described above. The invention is not however limited to these embodiments but extends to cover apparatus as claimed in the following claims.

CLAIMS

1. Apparatus for holding a disk-shaped data carrier having a central aperture, the apparatus comprising a base portion, disk engaging means for releaseably engaging the central aperture of a disk-shaped data carrier, the disk engaging means having retaining means for engaging and retaining the disk-shaped data carrier on the apparatus and release means which, when pressed, releases the engagement of the retaining means with the disk-shaped data carrier so the disk-shaped data carrier can be removed from the apparatus, wherein removable security means are provided to inhibit actuation of the release means to prevent release of the disk-shaped data carrier from the retaining means.
2. Apparatus as claimed in claim 1 in which the release means comprises a button-like member which contracts when pressed, the security means comprising a security member which prevents contraction of the button-like member.
3. Apparatus as claimed in claim 2 in which the button-like member comprises a plurality of button parts with at least one gap therebetween, the security member fitting within the said at least one gap.
4. Apparatus as claimed in claim 1, 2 or 3 in which the release means comprises a button-like member which depresses when pressed, the security means comprising a security member which prevents depression of the button-like member.
5. Apparatus as claimed in claim 4 in which the security member fits between the button-like member and the base portion.
6. Apparatus as claimed in any preceding claim in which the release means comprises a button-like member at least part of which pivots when pressed, the security means comprising a security member which prevents pivoting of the button-like member.
7. Apparatus as claimed in any preceding claim in which the security device comprises a plate having an aperture therein which fits over the release

means so pressure applied to the release means by a substantially planar part is prevented from actuating the release means.

8. Apparatus substantially as hereinbefore described with reference to and/or as shown in the accompanying drawings.

9. A security device for use in apparatus as claimed in any preceding claim.

10. A security device as claimed in claim 8 when dependent upon claim 3 shaped to fit within a gap between parts of the button-like member.

11. A security device as claimed in claim 10 comprising a cap for fitting over the button-like member and having a projection for fitting within said gap.

12. A security device as claimed in claim 8 when dependent upon claim 5 comprising a strip for fitting between the button-like member and the base portion.

13. A security device as claimed in claim 8 when dependent upon claim 7 comprising a plate having an aperture therein which fits over the release member.

14. A security device substantially as hereinbefore described with reference to and/or as shown in the accompanying drawings for fitting to apparatus substantially as hereinbefore described.

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Application No: GB 0024890.6 **Examiner:** Mike Henderson
Claims searched: 1 to 8 **Date of search:** 19 February 2002

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): B8P (PT PE2C)

Int Cl (Ed.7): G11B 33/04

Other: ONLINE:WPI,EPODOC,JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2331981A (DUBOIS LTD) (Whole disclosure relevant)	1,2,4 & 6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.